SBIR

Integration of Notification with 3D Visualization of Rover Operations

TRACLabs, Inc.

Technical Abstract

Future NASA exploration missions will rely on remote operation of robots. As human explorers move further away from Earth, robotic precursors will scout destinations and robotic assistants will perform tasks to reduce astronaut risk and workload. 3D visualization is a key component of how humans will interact with robots for these missions. When the operator engages a robot using visualization, there is a risk that he or she will become too focused on what is happening now in the vicinity of the robot and will not be aware of other important events that are not apparent in the field of view. This risk only increases when operations involve multiple robots. It is essential to ensure that the user does not miss important events that do not manifest in the vicinity of the robot. TRACLabs, Carnegie Mellon University (CMU), and Stinger Ghaffarian Technologies (SGT) propose to develop software for notifying users of 3D visualization about important notices without distracting users unnecessarily or adding to the visual clutter around the robot avatar. This software will monitor events from the robot or user, identify which events should be brought to the user's attention, and alert users in the 3D pane. The appearance of alerts is altered to shift a user's attention to new notices based on an assessment of the importance and urgency of the notice specific to the user. Thus the same notice may be presented to different users in different ways. Because notices are anchored to a screen overlay, they are visible regardless of what location the user is viewing in the 3D space. In Phase II we will implement this software and evaluate its effectiveness for NASA missions.

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Notes: • **What technology searches can the SBIR team do for you?**